

CLAIMS

1. An alignment apparatus, comprising:

a position detection optical system which detects  
a position of a mark formed on a street line of a  
substrate; and

a focus detection system which irradiates a  
detection light to the substrate, and which detects  
deviation between an irradiated region and a focused  
surface of the position detection optical system by  
detecting a reflected light of the detection light, the  
detection light is irradiated on a region of said street  
line on which is different from a region formed said  
mark.

2. The alignment apparatus as set forth in claim 1,  
wherein:

said street line exists in a first direction and  
in a second direction perpendicularly crossing with the  
first direction; and

said focus detection system comprises a first  
detection system using a first detection light extending  
along with said first direction and a second detection  
system using a second detection light extending along  
with said second direction.

3. The alignment apparatus as set forth in claim 2,  
wherein at least one of said first and second detection

systems detects a plurality of portions on said street lines.

4. The alignment apparatus as set forth in claim 2, wherein said focus detection system makes a comparison of intensities of reflection lights of said first and second detection lights, and performs focus detection by using either one of said first or second detection system in accordance with the comparison result.

5. The alignment apparatus as set forth in claim 2, wherein said focus detection system performs focus detection by using said first detection system when a street line on which a mark for position detection exists is along said first direction, and using said second detection system when the street line is along said second direction.

6. An exposure apparatus wherein a predetermined pattern is exposed to be transferred onto a substrate which is aligned by the alignment apparatus as set forth in claim 1.

7. An alignment method for aligning a substrate on which a mark is formed on a street line, including the steps of:

irradiating a detection light on a region on said street line before detecting a position of the mark by a position detection optical system, the region is

different from a region formed said mark;

detecting deviation between an irradiated region  
and a focused surface of said position detection optical  
system by detecting a reflected light of the detection  
light.

8. The alignment method as set forth in claim 7,  
wherein:

said street line exists in a first direction and  
a second direction perpendicularly crossing with the  
first direction; and

a first detection light extending along with said  
first direction and a second detection light extending  
along with said second direction are irradiated as said  
detection lights.

9. The alignment method as set forth in claim 8,  
wherein intensities of reflection lights of said first  
and second detection lights are compared and focus  
detection is performed by using either one of said first  
and second detection lights in accordance with the  
comparison result.

10. The alignment method as set forth in claim 8,  
wherein focus detection is performed by using said first  
detection light when a street line on which a mark for  
position detection exists is along said first direction,  
and using second detection light when the street line is

along said second direction.

11. An exposure method, including the steps of:

aligning a photosensitive substrate as an object  
to be exposed by using the alignment method as set forth

6        in claim 7; and

exposing the aligned photosensitive substrate  
with a pattern formed on a mask.